

Daniel M Reynolds
Amateur Radio Station AA0NI
2732 SW Murray Drive
Oklahoma City, OK 73119-5221
aa0ni@yahoo.com

Monday, October 31, 2005

Dear Ladies and Gentlemen of the FCC:

I would like to take a few moments to express my comments and concerns with regards to completely removing the 5 wpm Morse code requirement for all amateur radio licensees with HF (high frequency) privileges. To most Americans, maintaining a Morse code requirement for a radio hobby might seem “backwards”, or even archaic, especially when compared with today’s technologies of cell phones, satellite communications, and even broadband and wireless internet. Allow me to make a few arguments that will hopefully persuade you otherwise.

One of the main purposes of the Amateur Radio Service is:

“Recognition and enhancement of the value of the amateur service to the public as a voluntary noncommercial communication service, particularly with respect to providing emergency communications.”

- 47 CFR Part 97.1(a)

Amateur Radio has been active and on the scene of countless earthquakes, hurricanes, tornados, and floods. It is a fact, that, without Amateur Radio, many state, county, and local government efforts to communicate critical damage information would be severely hampered and many disaster relief organizations would struggle to meet the needs of evacuees and residents of disaster areas during a communications emergency. While it may not seem glamorous or sophisticated, Morse code can often be a critical element to maintaining communications during such emergencies. The reasons are simple.

Power Efficiency

Morse code has greatly reduced power requirements for maintaining communications when compared with digital modes and voice communications under the same conditions. Digital modes are not the most efficient because a computer is required to handle the conversion of audio signals to text. More often than not, the computer used consumes more power than the portable HF radio used for communications. Voice modes are also not that efficient since the power output required for an intelligible voice signal is often 10 times that required for an intelligible Morse code signal under the same conditions. Power efficiency becomes especially crucial during times when the power has been out for days or weeks and radio operators must depend upon batteries charged by intermittent gas generators or other renewable energy as their sole source of power.

Additionally, Morse code is a single frequency signal. All of the transmitted power can be focused into a “laser-like” tone resulting in a signal that can easily penetrate through poor conditions in which other HF modes would be rendered useless. It is not uncommon to find Amateur Radio operators continuing to make contacts on HF using Morse code long after conditions have deteriorated to the point where voice and data communications were severely affected by fading, noise, or other forms of interference.

Communications Efficiency

Morse code is naturally ‘spelled out’, so critical messages being handled during emergencies do not require operators to repeat or spell out easily misspelled names or words. Because many letters sound the same when spoken (e.g. B, C, D, G, P, T, V, Z all end with the same sound), voice operators must utilize phonetics (e.g. Alpha, Bravo, Charlie, ...) to spell out words. In the same amount of time that a voice operator might repeat a name phonetically spelled out (e.g. “Michelle ... Mike India Charlie Hotel Echo Lima Lima Echo”) the Morse code operator has already spelled out the name and has quickly moved on to the next portion of the message.

Additionally, while sending messages in Morse code, modern radios often take a quick break in between the sending of letters and words to receive. This allows the receiving operator to quickly “break in” during the message in case he needs to have a word repeated. This is not the case with voice communications on the HF bands where the receiving operator must wait until the entire message has been sent before he can ask for repeats of the message. This lends Morse code to significantly increased communications efficiency during periods of fading or interference.

Spectrum Efficiency

Morse code requires very little “bandwidth”. In terms of how many signals can be fit into the same ‘foot print’ of a signal, it is not uncommon to find 5-10 Morse code signals occupying the same amount of bandwidth that a voice signal might use. This means that there is less down time in passing critical messages since an operator will not have to wait for the next available frequency to pass his message. Voice operators do not have this luxury since they are usually waiting for their turn to use the single “common frequency” being used to pass messages in an already crowded band of amateur voice signals.

It is my contention that, by completely removing the Morse code requirement, you will be handicapping the ability of future Amateur Radio operators to serve during a truly catastrophic emergency. If new operators are not required to learn the Morse code, then most will avoid it and will not benefit from that knowledge in a true disaster – thereby handicapping those who must use it in an emergency. By continuing to require Amateur Radio operators to be proficient in Morse code, you are, in essence, giving future Amateur Radio operators in the U.S. a basic skill that could potentially benefit the people of the United States during a communications emergency.

Sincerely,
Daniel Reynolds